



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D205-596-105
Job Sheet 170129



Part No: D205-596-105

Job Qty: 1 ea

Part Name: Fwd Crosstube - Extended Height 31"



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/10/18

Job Tracking No:

Due Date: 1/26/18

Created By: Linda Lacelle

Type: SOLD

Description:

Customer: California Department Of Forestry & Fire Protection (CCAL101)

5500 Price Avenue McClellan, CA, 95652 USA ph:(916) 561-3359

Note: URF 14-644 DWG REV B(DEO) U/R IPP Rev:D 05.03.21 Added bending procedure KJ/JLM IPP Rev:E 08-01-10 ECN 1075 DD IPP Rev F 08.04.28 Added bending & mat'l EC verified by: DD IPP rev G 10.05.27 chg QC15 to QC6 EC verified by: DD IPP REV:H 13.11.29 as per dwg DEO B-2 DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	1/25/18	1/25/18	0.00	0.00	Start Up Crosstubes-1		DPZ
105	HandFXtube	1 pcs	1/25/18	1/25/18	0.00	0.51	HandFinish5		2018/01/17/28
107	QC	1 pcs	1/25/18	1/25/18	0.00	0.00	QC7-1		DPZ
110	CNC Bend Crosstubes	1 pcs	1/25/18	1/25/18	2.55	0.00	CNC Bend Crosstube		DAS GP
130	QC	1 pcs	1/25/18	1/25/18	0.00	0.00	QC15		47
140	Crosstubes	1 pcs	1/25/18	1/25/18	0.00	1.37	Crosstubes-1		9-89 GP
150	HandFXtube	1 pcs	1/25/18	1/25/18	0.00	0.51	Crosstubes-3		DAS GP
155	QC	1 pcs	1/25/18	1/25/18	0.00	0.00	QC7-1		38 DAS
160	QC	1 pcs	1/25/18	1/25/18	0.00	0.00	QC5		9-89 38
170	SprayPaint	1 pcs	1/25/18	1/25/18	0.00	2.03	Spray Paint		AA DAS JAN 27 2018
180	QC	1 pcs	1/25/18	1/25/18	0.00	0.00	QC14		38
190	Crosstubes See attached	1 pcs	1/26/18	1/26/18	0.00	1.37	Crosstubes-1	✓	AA DAS JAN 28 2018
200	QC	1 pcs	1/26/18	1/26/18	0.00	0.00	QC5		38
205	DC	1 pcs	1/26/18	1/26/18	0.00	0.00	DC		9-89
210	Packaging	1 pcs	1/26/18	1/26/18	0.00	0.00	Packaging3-1		DAS
220	QC21-FG	1 Ea	1/26/18	1/26/18	0.00	0.00	QC21		21 9-89 FEB 06 2018

Part Op 105 - INSIDE AND OUT

Descriptions: 110 - Bend as per Dwg D2889 using CNC bender program

140 - 1-Cut as per Dwg D205-596-105 2-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Polish cut surface. Scribe part # and batch # on one end of tube.

150 - ***IMMEDIATELY AFTER GRINDING***

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside and outside as per dwg and per QSI 005 4.1 Batch: 138646 2- Paint outside per QSI 005 4.2 Batch: 138686

190 - 1- Lightly scuff the bonded area using a 180 grit sand paper and clean the area with 41058 wash 'n' wipe 2- Apply Proseal as per dwg D205-596-105 (DEO). 138208 exp 5/18

200 - ***PRIOR TO PACKAGING RECHECK TORQUE ON CLAMPS AFTER PROSEAL HAS CURED 72HOURS.***

205 - Photocopy D205-594 bluefile & type labels per PPP D205-596-105 CHG003

210 - Identify and pack for shipping as per PPP D205-596-105

Job Allocations					
Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation 103676	D6005-180	1	22	0	0
190-Crosstubes	D2893-1 5032424	2	2	0	0
	D3595-063-450 5033985	4	23	0	0
	MS21920-25 M138441-169	4	149	0	0
Part Specifications					
Specifications could not be found.					

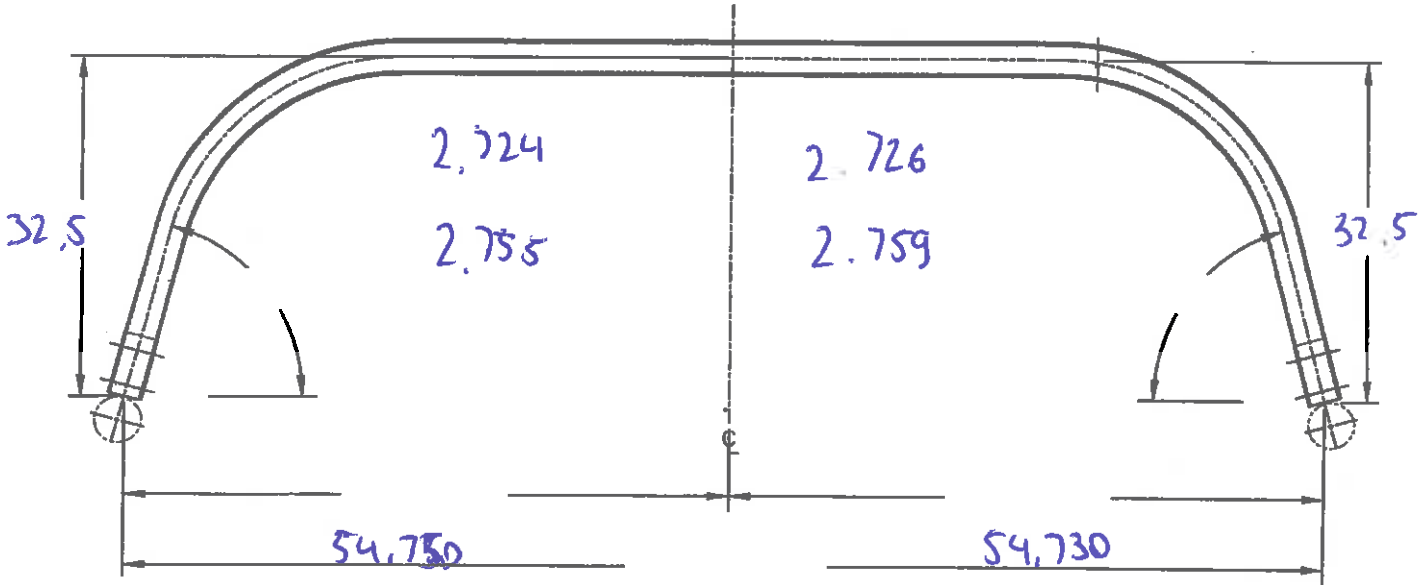
Plex 1/10/18 1:34 PM dart.lacelle.linda

10
50
164

215

DART AEROSPACE LTD		Work Order:	170129
Description:		Part Number:	
Inspection Dwg:	Rev:	Page 1 of 1	

Required Dimension	Min	Max
Height	32.4	32.6
1/2 Span	54.6	54.8
Angle	49	52
Total Span	109.2	109.6
Bending Passes	3	--
Crushing	--	6%



	Side A	Side B
Bending Passes		
Crushing	0.5%	0.6%
Comments		

DAS
47

QC15 Inspection	9-89
Date	18-01-25

Rev	Date	Change	Revised by	Approved
A		New Issue		
B	06.09.19	Reformat; QC level revised	KJ/JM	
C	07.02.06	Reformat	KJ/JM	
D	12.02.15	Added bending passes and crushing	KJ	
E	12.03.07	Revised comments table	KJ	

PARTS LIST:

Qty	Part Number	Description
X	D205-596-105	CROSSTUBE ASSEMBLY, HI-HI FWD
1	D6005-180	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURE FROM D6005-180
FINISHED LENGTH = 134.40 ± 0.02
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS
- 7) WEIGHT: 40 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1 SUPPORT ON THE TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
NOTE: IT IS ACCERTABLE TO SUBSTITUTE MS21920-25 CLAMPS WITH LONGER (MS21920-26) OR SHORTER (MS21920-24) CLAMPS TO ACCOMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB

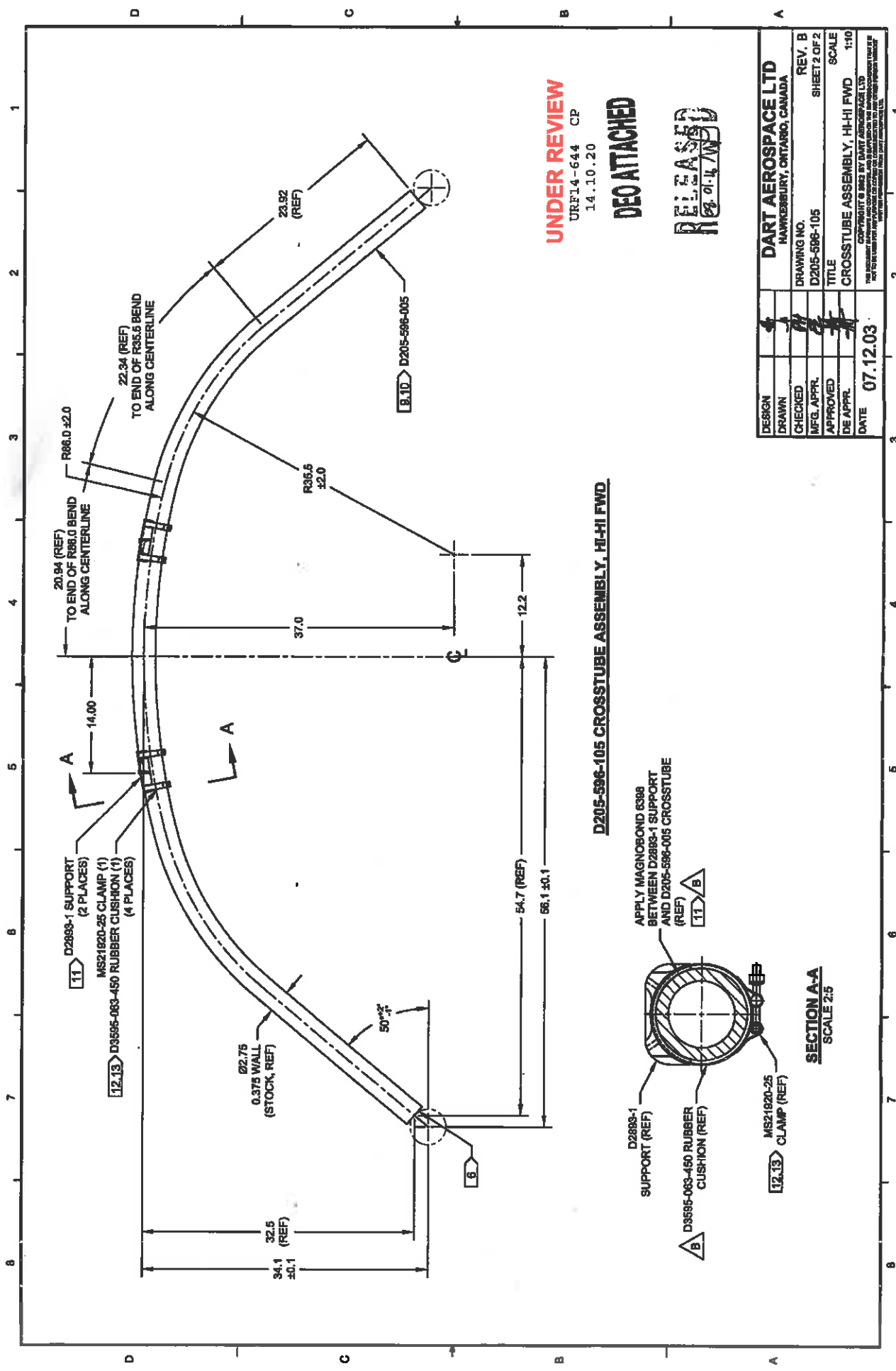
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. _____

UNDER REVIEW

URF14-644 CP
14.10.20

DEO ATTACHED RELEASED
06.01.16

B	SUPPORT NOW MAGNOBONDED; REMOVE D2856-600-851 ABRASION STRIP; UPDATED NOTES; ADDED D3595-063-450 CUSHION; MS21920-25 WAS MS21920-24	MB	07.12.03
A	NEW ISSUE	DS	02.11.20
REV.	DESCRIPTION	BY	DATE
DESIGN	4	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	1		
CHECKED	PH	DRAWING NO.	REV. B
MFG. APPR.	2	D205-596-105	SHEET 1 OF 2
APPROVED	3	TITLE	SCALE
DE APPR.	4	CROSSTUBE ASSEMBLY, HI-HI FWD	NTS
DATE	07.12.03	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



DESIGN	4	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D205-598-105 REV. B SHEET 2 OF 2 SCALE 1:10
DRAWN	1	
CHECKED	11	
MFG. APPR.	11	
APPROVED	11	
DE APPR.	11	TITLE CROSTUBE ASSEMBLY, H-HI FWD
DATE	07.12.03	COPYRIGHT © 2003 BY DART AEROSPACE LTD THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD

DRAWING NO. D205-596-105	TITLE CROSSTUBE ASS'Y, HI-HI FWD	REV. B	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D205-596-105-B-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 90	CHECKED A.P.		MFG. APPR. AP	APPROVED	DATE 13/11/21	DE APPR. 13/11/21	
DATE 13.11.11	DATE 13.11.19		DATE 13.11.19	DATE			

PURPOSE:
REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Qty	Part Number	Description
A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-847-100, TYPE II, CLASS 2 ADHESIVE)
-----	----------------	---

NOTE 11 & 13, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

11) TO INSTALL D2893-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT), APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

WAS:

11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

13) TORQUE CLAMPS 80 TO 100 IN-LB.

RELEASED
2013-11-26

UNDER REVIEW

URF14-644 CP

COPYRIGHT © 2013 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
NOT TO BE USED FOR ANY PURPOSES OTHER THAN THAT FOR WHICH IT WAS SUPPLIED BY DART AEROSPACE LTD.
WITHOUT PERMISSION FROM DART AEROSPACE LTD.

DRAWING NO.	TITLE	REV. B	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D205-596-105	CROSSTUBE		ENGINEERING ORDER	D205-596-105-B-3	SHEET 1 OF 1	NTS
DRAWN	QD	CHECKED	P.P.	MFG. APPR.	DE APPR.	
DATE	15.01.15	DATE	15.01.20	DATE	15.01.20	

CHANGE:
ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Qty	Part Number	Description
X	D205-596-105B	CROSSTUBE ASSEMBLY (214 HI-HI FWD)

THE D205-596-105B CROSSTUBE HAS THE SAME PARTS LIST AS THE D205-596-105 CROSSTUBE EXCEPT AS FOLLOWS:

IS:

2	D5017-1	SUPPORT
---	---------	---------

WAS:

2	D2893-1	SUPPORT
---	---------	---------

INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D205-596-105 CROSSTUBE.

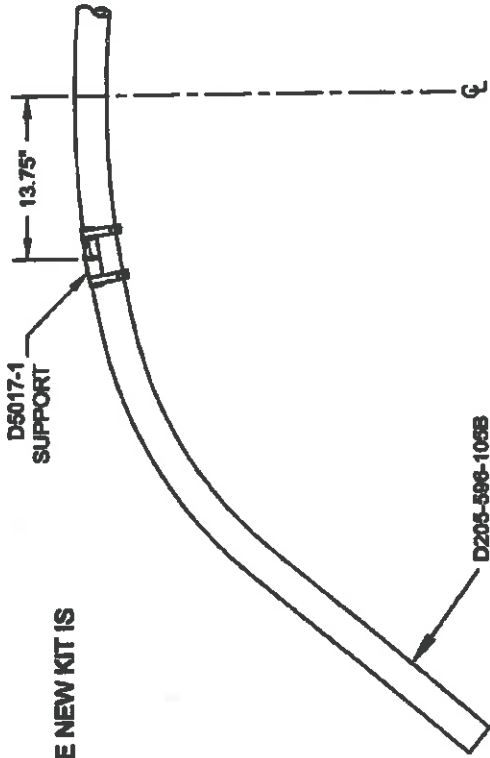


FIGURE 1 - SUPPORT INSTALLATION

COPYRIGHT © 2015 BY DART AEROSPACE LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OTHER THAN THAT FOR WHICH IT WAS SPECIFICALLY PREPARED WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only



QA Closed: _____ Date: _____		Work Order: <u>170129</u> Part No. <u>0205596-105</u> NCR No. <u>19-7168</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐		Engineering ☒ Quality ☐ Other ☐			
Date: <u>18/1/18</u>		Step #: _____		QTY Effective : <u>1</u>		MRR (GS1042) Approval <u>DAS</u> 12 9-89		Completed By <u>[Signature]</u> 18/1/18			
Description Work Order Deviation Flip orientation of MSZ1520 clamps so that mechanism is on top				Disposition <u>DAS</u> 12 9-89 Acceptable deviation. Clamps mechanism is on top of cradle to mth 255 202-664 cradles. To prevent deterioration of rubber cushion							
Root Cause Environment ☐ Design ☒ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☒ Finish ☐ Misread ☐ Turning Sequence ☐	
QC / QA Coordinator Approval <u>DAS</u> 8 9-89		QC / QA Coordinator Approval <u>DAS</u> 8 9-89									